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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,592	02/13/2002	Edgar wursthorn	PD990053	9703

7590

09/28/2005

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Princeton, NJ 08543-0028

EXAMINER
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CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/049,592	<b>Applicant(s)</b> WURSTHORN, EDGAR	
	<b>Examiner</b> Edith M. Chang	<b>Art Unit</b> 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 Feb 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20020213</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The block pertaining elements 10, 50, 60 and 90 in Fig.1 need to have descriptive label, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of "data source" should be inserted to element 10, "digital preliminary stage" to element 50, "filter/control stage" to element 60 and "phase detector" to element 90 of Fig. 1 to properly describe elements 10, 50, 60 and 90 in Fig.1.
2. The block pertaining elements 51, 52, 54 and 60 in Fig.2 need to have descriptive label, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of "rectifier" should be inserted to element 51, "delay" to element 52, "processing stage" to element 54 and "filter/control stage" to element 60 of Fig.2 to properly describe elements 51, 52, 54 and 60 in Fig.2.
3. The block pertaining elements 52, 54, 55, 57 and 60 in Fig.4 need to have descriptive label, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of "delay" should be inserted to element 52, "processing stage" to element 54, "separating stage" to element 55, "absolute value formation stage" to element 57 and "filter/control stage" to element 60 of Fig. 1 to properly describe elements 52, 54, 55, 57 and 60 in Fig.4.
4. The block pertaining elements 51, 52, 54, 55, 57 and 60 in Fig.5 need to have descriptive label, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of "rectifier" should be inserted to element 51, "delay" to element 52,

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"processing stage" to element 54, "separating stage" to element 55, "absolute value formation stage" to element 57 and "filter/control stage" to element 60 of Fig. 1 to properly describe elements 51, 52, 54, 55, 57 and 60 in Fig.5.

### ***Specification***

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The preliminary amendment should be limited to a single paragraph on a separate sheet.

6. The disclosure is objected to because of the following informalities:

On page 8 line23, "subtraction stage 51" should be "subtraction stage 53.

Appropriate correction is required.

### ***Claim Objections***

7. Claims 1-8 are objected to because of the following informalities:

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Claim 1, line 1: "Phase detector" should be "A phase detector"; line 4: "having a delay" is suggested changing to "comprising a delay"; line 5: "having a subtraction" is suggested changing to "a subtraction"; line 6: "and comprising" is suggested changing to "and". Since, "having" and "comprising" both are used in claim 1, for the consistence and clarity, the "comprising" is chosen to use; line 13: "possible values" should be "possible output values".

Claims 2-8, line 1: "Phase detector" should be "The phase detector".

Claim 3, "said control stage" should be "said filter or control stage"; "PI" should be "Proportional Integral (PI)".

Claim 8, lines 5-6: ", including the positive and the negative path, is processed" is suggested changing to "is processed".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 6-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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Claim 6 recites that the data signal is supplied to a separating stage before rectification. However, it does not disclose in the drawings, Fig.4 or Fig.5.

Claims 7 and 8 are dependent on the rejected claim 6.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 4: "supplied to it", the "it" does not clearly indicate that what the "it" refer to or represent; line 7: "the output of the subtraction output are" is not clearly indicate that "the output of the subtraction" is singular or it should be "the outputs of the subtraction" which are plural; line 8: "whose output" does not clearly indicate the output of what element/means is, as the "whose output"; lines 10-11: "the respective differential value" and "the full differential value range" lack antecedent bases; lines 12-13: "the plurality of possible values" lacks antecedent basis, or it refer to "a plurality of possible output values" recited in line 10 of claim 1, then it should be "the plurality of possible output values"; line 13: "all differential values" lacks antecedent basis.

Claim 4, "in each case" lack antecedent basis, it does not clearly indicate that what is the "case" or "cases" which the "each case" refer to.

Claim 7, line 4 & Claim 8, line 7: "the processing or comparison stages" lack antecedent basis.

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Claim 10, "the sampling clock signal" lacks antecedent basis.

11. Claims 9 and 10 provides for the use of the phase detector, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 9 and 10 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 2-6 are dependent on the rejected claim 1.

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-5 and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US 5,452,326).

Regarding to **claim 1**, In FIG.5, Tanaka discloses a phase comparator or detector and its method having a reproduced waveform (Digital) as a sampled and digitized data signal supplied to the input terminal 21, comprising:

A D-type flip-flop 78 (as the *delay stage*) providing a delay of data sample (column 9, lines 28-32), wherein a data sample from the input terminal 21 supplied to an exclusive-OR gate 79 and a delay of the data sample from the 78 supplied to the gate 79;

the exclusive-OR gate 79 (as the *subtraction stage*) to compare (column 9, lines 28-32) the data sample and the delayed data sample from the delay stage 78;

a Phase Calculation element 77 (as the *filter or control stage*) receiving the signal supplied by the gate 79 at chip select input CS; and

a Priority Encoder 75 (as the *processing stage*) located between the subtraction stage 79 and the filter or control stage 77. The Priority Encoder 75 (column 8, lines 54-57) judges the sample data based on the values of the high-order 4-bit data and provides the result in a 2-bit data value as shown in FIG.7A-7F (column 11, lines 35-43), wherein four sub-ranges (01, 00, 11 and 10) are in a full differential value range, all value in one range (such as 00) will get the same assigned value (column 8, line 66-column 9, line 3).

Regarding to **claim 2**, In FIG.5, Tanaka discloses the element 79 is integrated with the priority Encoder and the Phase Calculation as a comparison stage which compares the delayed (output from element 78) and undelayed (output of 21) sample by



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element 79 and assigns one of a plurality of output values (01, 00, 11 and 10) to the respective difference value.

Regarding to **claim 3**, In FIG.2, Tanaka discloses the PLL Output Interface producing the PLL Phase Error feedback to VCO 50 (column 5, lines 44-47) via filter 40 with integrator 45 (column 6, lines 7-9) and controlling the VCO such that the error signal decreases (to lock). Hence Tanaka discloses the PI (Proportional and Integral) control to control the VCO with the sum of a voltage proportional to the error signal and a voltage proportional to the time integral of the error signal.

Regarding to **claim 4**, In FIG.5, Tanaka discloses the delayed sample is subtracted from the undelayed sample in the element 79.

Regarding to **claim 5**, In FIG.5, Tanaka discloses an Absolute Value Detector 72 (as the rectifier) for signal conditioning the digital reproduced waveform input provided.

Regarding to **claims 9 & 10**, In FIG.5, Tanaka discloses a phase comparator or detector used in phase locked loop (PLL) for extracting a clock from input digital data (column 1, lines 5-10).

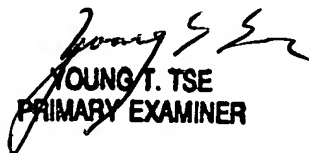
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang  
September 22, 2005

  
YOUNG T. TSE  
PRIMARY EXAMINER